



CALIFORNIA
High-Speed Rail Authority

Central Valley Segment Funding Plan

Final – January 1, 2017

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Glossary of Key Defined Terms

California High Speed Rail Program Phase 1 (“Phase 1”)	The corridor of the high-speed rail system from Los Angeles and Anaheim to San Francisco including the blended system between San Francisco and San Jose.
California High Speed Rail Program Silicon Valley to Central Valley Line (“Valley to Valley Line”)	As defined in the 2016 Business Plan, the section of the California High-Speed Rail System that runs from San Jose Diridon Station to just north of Bakersfield.
Funding Plan	The plan prepared by the Authority herewith to meet the requirements of S&H section 2704.08, subdivision (d), specifically part (1) for the Usable Segment that is the subject of this Funding Plan.
FRA Agreements	Authority grant agreements with the federal government numbered FR-HSR-0009-10-01-06 (ARRA Agreement, Amendment 6) and FR-HSR-0118-12-01-00 (FY 10 Agreement).
Proposition 1A (Prop 1A) or the Bond Act	The “Safe, Reliable High-Speed Passenger Train Bond Act for the 21st Century” (the Bond Act), approved by voters in November 2008. The Bond Act authorizes \$9.95 billion in GO bonds to pay for the capital costs of the high-speed rail system and improvements to regional services which will connect to the system. The Bond Act is codified in Streets and Highways Code (S&H) section 2704 et seq.
SB 1029	SB 1029, passed by the California State Legislature and signed by Governor Brown in July 2012, appropriates Federal and State funding for the Central Valley Segment. The appropriation includes the \$2.6 billion in Prop 1A funds that are the subject of this Funding Plan.

Acronyms and Abbreviations

AB	Assembly Bill
ARB	California Air Resources Board
ARRA	America Recovery and Reinvestment Act
Authority	California High-Speed Rail Authority
BNSF	Burlington Northern Santa Fe
CO	Changer Order
CP	Construction Package
DB	Design Build
DBE	Disadvantaged Business Enterprise
DRB	Disputes Resolution Board
DVBE	Disabled Veteran Business Enterprise
EIR/EIS	Environmental Impact Report/Environmental Impact Statement
FRA	Federal Railroad Administration
GHG	Greenhouse Gases
GGRF	Greenhouse Gas Reduction Fund
GO	General Obligation
NEPA	National Environmental Policy Act
PRIIA	Passenger Rail Investment and Improvement Act of 2008
Prop 1A	Proposition 1A, also known as the “Safe, Reliable High-Speed Passenger Train Bond Act for the 21st Century”
RFP / RFQ	Request for Proposals / Request for Qualifications
ROD	Record of Decision
SB	Senate Bill
S&H Code	Streets and Highways Code
SCC	Standard Cost Category
SJJPA	San Joaquin Joint Powers Authority
STO	State Treasurer’s Office
YOE	Year of Expenditure

Introduction

Proposition 1A, the “Safe, Reliable High-Speed Passenger Train Bond Act for the 21st Century” (the Bond Act) was approved by voters in November 2008. The Bond Act authorizes \$9.95 billion in general obligation (GO) bonds to pay for the capital costs of the high-speed rail system and improvements to regional services which will connect to the system. The Bond Act is codified in Streets and Highways Code Section (S&H) 2704 et seq. S&H 2704.08, subdivision (d) requires that, prior to committing any proceeds of bonds described in paragraph (1) of subdivision (b) of Section 2704.04 for expenditure for construction and real property and equipment acquisition on each corridor, or usable segment thereof, other than for costs described in subdivision (g), the authority shall have approved and concurrently submitted to the Director of Finance and the Chairperson of the Joint Legislative Budget Committee the following: (1) a detailed funding plan for that corridor or usable segment thereof...(as further described herein); and (2) a report or reports prepared by one or more financial services firms, financial consulting firms, or other consultants, independent of any parties, other than the authority, involved in funding or constructing the high-speed train system, making certain indications.

Purpose of the Funding Plan

The California High-Speed Rail Authority (Authority) has prepared this Streets and Highways (S&H) Code Section 2704.08 subdivision (d) Funding Plan for the Central Valley segment currently under construction, which is the Usable Segment described in **Section A**, in satisfaction of the above-referenced requirement in the S&H Code for the commitment of \$2.609 billion of Proposition 1A (Prop 1A) bond proceeds for expenditure for construction activities and real property and equipment acquisition.

In 2012, Prop 1A bond proceeds in the amount of \$2.6 billion were appropriated by the Legislature in Senate Bill 1029 (SB 1029). In making its appropriation, the Legislature chose to use Prop 1A funds to match the concurrent appropriation of federal funds to begin construction of the high-speed rail system. This Funding Plan follows the Legislature’s direction by using the appropriated funds to pay for the ongoing construction in the Central Valley that SB 1029 authorized.

Consistent with the Legislature’s appropriation, the Authority proposes to use these Prop 1A bond proceeds for the segment of the system that covers the length of the existing construction contracts (construction packages (CPs) 1-4). This segment consists of 119 miles of civil works as well as the systems, communications, yards, buildings and stations for the Authority to be able to start testing trains on it once construction is completed.

This segment will serve as the foundational backbone for the statewide high-speed rail system and serve as the test track that will be necessary before service can begin on the Silicon Valley to Central Valley Line (Valley to Valley Line) as described in the 2016 Business Plan. There is currently no other place in this country to test trains at speeds of 200mph and higher so completing this segment is essential to bringing high-speed rail to California. Access to the funding that is the subject of this Funding Plan is critical to maintaining momentum on the ongoing construction in the Central Valley and providing the required matching funds under the terms of the Federal grant agreements.

This Funding Plan covers the use of the Prop 1A funds that were requested under the S&H Code section 2704.8, subdivision (c) Funding Plan that was approved on November 3, 2011 (Resolution HSR#11-23). Since then, the Legislature has appropriated those funds and the Authority has advanced the project through the environmental process, acquired right of way, and relocated utilities, has broken ground, and significant construction is underway.

Overview of the Central Valley Segment

The Central Valley segment that is the subject of this Funding Plan incorporates an alignment from approximately adjacent to the Madera Amtrak Station to Poplar Avenue in Shafter as described in the Final Environmental Impact Reports/Environmental Impact Statements (FEIR/EIS) for the Merced-Fresno and Fresno-Bakersfield sections. The segment includes two stations that are environmentally cleared at Fresno and Kings/Tulare. The segment will be a fully electrified high-speed rail segment suitable and ready for high-speed train operations that, upon completion, could be put into use by one or more passenger rail service providers. The segment will first serve as the nation's first test track for high-speed trains (over 200mph) and the Authority will run high-speed revenue service over the segment once it completes the Valley to Valley Line, as described in the 2016 Business Plan. As required under the Federal grant which the Prop 1A funds are matching, if the development of the Valley to Valley Line is significantly delayed then the existing state Amtrak service could use the segment on an interim basis to provide faster service to their customers, as was described in the Authority's Business Plans. However, this is a back-up option and not the primary goal of completing this segment.

The Authority is currently delivering the Central Valley infrastructure through a series of contracts. The first contracts that the Authority let were design-build (DB) contracts for construction of the civil works for the segment. These contract packages include CP 1, CP 2-3, and CP 4. All of these contracts have been fully executed and work is underway with heavy construction ongoing. The Authority is now seeking the remainder of the appropriated funds through this Funding Plan in order to continue to advance these contracts and to be able to procure systems, power and track to complete the full build-out of the test track on the way to completing the Valley to Valley Line.

Organization of the Funding Plan

This Funding Plan is organized consistent with the requirements of S&H Code section 2704.08, subdivision (d).

Section A: Usable Segment - defines the 119-mile Central Valley segment as the Usable Segment.

Section B: Sources of Funds and Anticipated Timing of Receipt - describes the sources of funds to be used for the construction and acquisition activities for the segment.

Section C: Projected Ridership and Operating Revenue - includes a discussion of ridership and revenue forecasts when the Authority plans to run service on the segment after it is connected to the Valley to Valley Line. It also provides an overview of the ridership of the existing San Joaquin service that could run on the infrastructure in case the Valley to Valley Line is significantly delayed.

Section D: Construction Cost - describes the construction and acquisition cost estimates for the segment.

Section E: Material Changes - describes the material changes between the Funding Plan prepared pursuant to S&H Code section 2704.08, subdivision (c) on November 3, 2011 and this Funding Plan.

Section F: Terms and Conditions - describes the terms and conditions of the agreements that the Authority has or plans to enter into with regard to the completion of the Central Valley segment.

A. The Usable Segment

Streets and Highways Code section 2704.08, subdivision (d)(1)(A) requires identification of the corridor, or usable segment thereof, and the estimated full cost of constructing the corridor or usable segment thereof. A usable segment is defined in section 2704.01 as a portion of corridor that includes at least two stations.

Overview of the Usable Segment

The Usable Segment that is the subject of this Funding Plan is the part of the high-speed rail system now under construction stretching from approximately adjacent to the Madera Amtrak station to Poplar Avenue in Shafter. As required, this section includes at least two stations in Fresno and at Kings/Tulare. This Funding Plan includes all of the necessary high-speed rail components to be able to test and run high-speed rail trains over the segment. Additionally, the segment could be connected to the existing BNSF line on both ends to run Amtrak service over the corridor, should the completion of the Valley to Valley Line be significantly delayed. Funds are specifically reserved in the Federal grant for this purpose.

Construction Elements

The total expenditure for completion of this segment is estimated to be \$7.813 billion in Year of Expenditure dollars (YOE\$). This includes all items that will enable the Authority to test and run high-speed trains on the segment. Specifically, the expenditures will include the following:

- Civil Works
- Track
- Railroad Infrastructure
- Signaling
- Overhead catenary system
- Communications systems
- Positive train control
- Heavy Maintenance Facility
- Stations (Fresno and Kings/Tulare)

The purchase of high-speed rail trains is not part of completing the Usable Segment but will be part of the Authority's implementation of the Valley to Valley Line. The trains will utilize this Usable Segment as a test track in order to enable the rolling stock, signaling system, and the electrification system to be tested and commissioned and for all of those systems to be certified. To purchase the trains, the Authority will request an additional appropriation of \$865 million in Prop 1A funds or will use \$865

million from the continuous appropriation the Legislature provided in SB 862. Those funds (if Prop 1A) will be part of a future Funding Plan that the Authority will submit.

Exhibit A-1 – Central Valley Segment Capital Cost Projections

Capital Costs	2015\$	YOE\$
Central Valley Segment	7,161	7,552
Heavy Maintenance Facility	234	261
Total Central Valley Segment Capital Cost	7,395	7,813

Components of the Usable Segment

The Central Valley segment that is under construction has been adopted by the Authority's Board as a Usable Segment upon approval of this Funding Plan. The segment will cover 119 miles of new high-speed rail alignment. As adopted by the Board, the segment will include substructure, bridges, track, systems and communications, yards, buildings and stations constructed to high-speed rail standards and will be suitable and ready for high-speed rail operations. Construction of Central Valley segment civil works has been ongoing since 2013 with over \$3 billion of contracts awarded to design-build contractors.

CP 1 is the first construction contract executed on the Valley to Valley Line portion of Phase 1 of the high-speed rail system. The CP 1 construction area is a 32-mile stretch between Avenue 19 near the city of Madera (approximately adjacent to the existing Madera Amtrak station) and East American Avenue in Fresno County. It includes 20 grade separations, 2 viaducts, 1 tunnel and a major river crossing over the San Joaquin River. Construction is under way at multiple active sites and will expand in the coming months to other areas. The scope and boundaries of CP1 are presented in **Exhibit A-2**. For more information on CP1 please refer to: http://www.hsr.ca.gov/Programs/Construction/about_construction_package_1.html

Exhibit A-2. 1 CP 1 Project Scope and Boundaries



Source: About Construction Package 1

http://www.hsr.ca.gov/Programs/Construction/about_construction_package_1.html

CP 2-3 is the second construction contract executed on the Central Valley segment. The CP 2-3 construction area extends in excess of 65-miles from the terminus of CP 1 at East American Avenue in Fresno County to approximately one mile north of the Tulare-Kern County line. CP 2-3 includes approximately 36 grade separations in the counties of Fresno, Tulare and Kings, including viaducts,

underpasses and overpasses. Work in this section is currently underway with construction progressing. The scope and boundaries of CP2-3 are presented in **Exhibit A-3**. For more information on CP2-3 please refer to:

http://www.hsr.ca.gov/Programs/Construction/about_construction_package_2_3.html

Exhibit A-3. CP 2-3 Project Scope and Boundaries



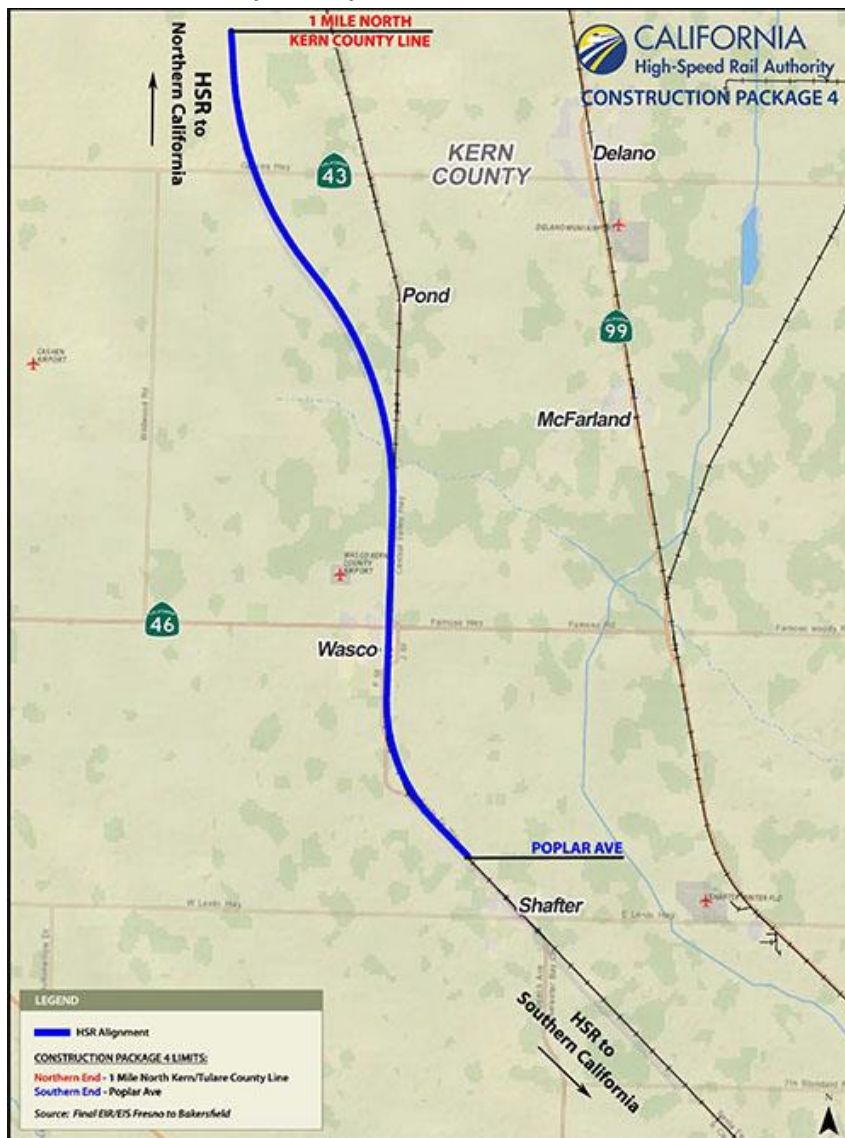
Source: About Construction Package 2-3

http://www.hsr.ca.gov/Programs/Construction/about_construction_package_2_3.html

CP 4 is the third construction contract executed on the Silicon Valley to Central Valley Line. The CP 4 construction area is a 22-mile stretch bounded by a point approximately one mile north of the Tulare/Kern County Line at the terminus of CP 2-3 and Poplar Avenue to the south. CP 4 work will include construction of at-grade, retained fill and aerial sections of the high-speed rail alignment and relocation of four miles of existing BNSF tracks.

The scope and boundaries of CP4 are presented in **Exhibit A-4**. For more information on CP4 please refer to: http://www.hsr.ca.gov/Programs/Construction/about_construction_package_4.html

Exhibit A-4. CP 4 Project Scope and Boundaries



Source: About Construction Package

http://www.hsr.ca.gov/Programs/Construction/about_construction_package_4.html

The remaining elements that will enable the Central Valley Segment to perform as the first high-speed rail test track have yet to begin procurement but will be delivered consistent with the Authority's Business Plan through subsequent procurements once civil works have advanced further. These remaining elements include the following:

- Stations and passenger platforms
- Traction power (including the overhead contact system and all of the necessary substations, switching stations, and paralleling stations) capable of achieving design speeds of 250 mph and operating speeds of 220 mph.
- Communications system including fiber-optic cables and radio communications
- Signaling system and related on-board equipment for the trains
- The operations control center
- Warning system to detect, report, and where appropriate, autonomously mitigate safety events such as earthquakes, broken rails, intrusions by unauthorized persons/objects, high temperatures, high winds, and flooding.
- Supervisory Control and Data Acquisition System
- Closed Circuit Television System
- Direct Line Telephone System
- Passenger information system at each station tied to the operations control center and signaling system to ensure accurate and current information.

Legislative Counsel Conclusion

In June 2012, the Office of Legislative Counsel (a nonpartisan public agency that provides legal services to the Legislature and others) concluded that the Central Valley segment qualified as a 'usable segment' under the Bond Act. The Legislature considered this opinion in making the appropriation in SB 1029 and the Authority is submitting this Funding Plan consistent with the Bond Act and the Legislature's direction. The Legislative Counsel wrote:

"Moreover, while it is clear that eventually the HSR system is to be used by electrified high-speed trains (subd. (a), Sec. 2704.09), there are several provisions of the bond act that contemplate use of newly constructed high-speed rail line segments for passenger train service, as distinguished from high-speed train service. (see para. (3), subd. (f), Sec. 2704.08, referring to "the utility of those corridors or usable segments thereof for passenger train services other than the high-speed train service"; see sub para. (1), para. (2), subd. (e), Sec. 2704.08, referring to "one or more passenger service providers ... using the tracks or stations for passenger train service"; and see subpara. (e), para. (2), subd. (d), Sec. 2704.08, referring to "one or more passenger train providers ... using the tracks or stations for passenger train service"). Thus, with respect to the service that may be expected to operate on a line that is constructed with Proposition 1A HSR funds, the bond act makes a distinction between "high-speed train operation" and "passenger train service," ... Based on the foregoing, we think that operation of a conventional passenger train service on the track and structures constructed for high-speed rail is contemplated and

authorized by the bond act as an interim measure until further progress is made on construction of the HSR system that will allow operation of a commercially viable high-speed train service...

It is our understanding that the initial 130-mile segment, as proposed to be constructed by the authority, would include two stations, Fresno and Kings/Tulare, and that it would be designed to be used on an interim basis by the Amtrak San Joaquin conventional passenger train service until additional segments of the HSR system are constructed and the operation of a commercially viable high-speed train service can be implemented. Accordingly, it is our opinion that the initial 130-mile segment would qualify as a "usable segment" under the bond act."¹

¹ Legislative Counsel Bureau's Opinion, June 8, 2012. Note that the opinion analyzed use of the Central Valley segment infrastructure without electrification or advanced signaling systems by an interim Amtrak San Joaquin diesel service. While this Funding Plan has evolved that concept to actually build full high-speed rail infrastructure, the concept and viability of an interim operation of passenger service on the infrastructure before commercial high-speed rail operations (as analyzed by the Legislative Counsel) still applies.

B. Sources of Funds and Anticipated Time of Receipt

Streets and Highways Code section 2704.08, subdivision (d)(1)(B) requires identification of the sources of all funds to be used and anticipated time of receipt thereof based on offered commitments by private parties, and authorizations, allocations, or other assurances received from governmental agencies.

This section describes the sources of funds, summarizes key conditions to receipt of funds, including timing constraints and matching funds requirements, and presents the anticipated time of receipt of such funds.

Prop 1A bond funds in the amount of \$2.6 billion were appropriated by the Legislature in SB 1029. In making its appropriation, the Legislature also provided guidance for how it (and the people of California) want the system to be developed in compliance with the requirements set out in Prop 1A. The Authority's plans follow the Legislature's direction in delivering the system and using the funds that were appropriated. The Authority has been using the Federal funds that were appropriated for the ongoing construction in the Central Valley. This Funding Plan is being submitted to begin using the appropriated Prop 1A funds to match those Federal funds.

Overview of Sources of Funds

The Authority has identified the following funding sources, totaling \$7.813 billion, to fund construction of the Central Valley test track, the Usable Segment that is the subject of this Funding Plan. The segment is funded from three sources:

- (1) Prop 1A bond appropriations totaling \$2.609 billion;
- (2) Matching Federal grants totaling \$2.970 billion; and
- (3) State Cap-and-Trade Proceeds totaling \$2.234 billion.

Both Prop 1A bond funds and matching Federal grant funds were appropriated in the fiscal year 2012-13 Budget Act (see Senate Bill 1029, enacted in July 2012). The State Cap-and-Trade Proceeds were appropriated in 2014 through a one-time appropriation in SB 852 and a continuous appropriation in Senate Bill 862, as described in detail, below. The total amount of funds to be used to complete the segment is \$7.813 billion.

Exhibit B-1. Funding Sources to Complete the Central Valley Segment²

Funding Sources	Funding Amounts (\$ millions)
State General Obligation Bond Funds - Proposition 1A	\$2,609
State funds - Cap-and-Trade	\$2,234
<i>State Funds Subtotal</i>	\$4,844
American Recovery and Reinvestment Act of 2009 (ARRA)	\$2,041
High-Speed Intercity Passenger Rail Program for Fiscal Year 2010 (FY 10)	\$929
<i>Federal Funds Subtotal</i>	\$2,970
All Funding Sources Total	\$7,813

Sources: SB 1029, SB 862, ARRA and FY 10 Agreements and September 2016 Funding Contribution Plan (subject to FRA approval)

All the physical elements contemplated in this Funding Plan related to electric high-speed trains running, including for testing, on the Central Valley segment (e.g., electrification equipment, etc.) are not necessary for San Joaquin service to operate. Without those elements, the total cost of the Central Valley segment would be \$6.69 billion and would be covered by the \$2.609 billion in Prop 1A funds, the \$2.97 billion in federal funds, and \$1.11 billion in Cap-and-Trade proceeds.

Beyond the funding sources listed above, the Authority's Grant Agreements with the Federal government contain provisions for an Interim Use Reserve. The Interim Use Reserve is designed to cover costs that would be incurred to allow interim service to run on the corridor. These elements could include track connections and associated communications and signaling, interim stations, operations control, and maintenance, if necessary. The funds allocated to this Interim Use Reserve are 100 percent Federal funds. These funds ensure that the usable segment will be put into use by passenger train service, as required in Prop 1A.

As part of implementing the Valley to Valley Line, the Authority plans to submit an additional Funding Plan to request \$865 million in Prop 1A funds, or to use \$865 million from the continuous appropriation the Legislature provided in SB 862, for the purchase of high-speed trains. The trains are a long-lead time item so procurement will start as described in the 2016 Business Plan. Those funds, if Prop 1A, will be matched using the Federal and Cap-and-Trade funds that are part of this Funding Plan but that go

² Does not include already-expended project development costs (e.g. environmental clearance).

beyond (so are not needed to match) the \$2.6 billion in Prop 1A funds included here as described in **Exhibit B-1** above.

The following sections describe the sources of funds in more detail and the anticipated time of receipt of those funds based on expected commitments, authorizations, agreements, allocations, or other means.

Bond Proceeds

The California High-Speed Rail Program will use proceeds from the sale of State GO bonds authorized under the “Safe, Reliable High-Speed Passenger Train Bond Act for the 21st Century” that voters approved in 2008. This section outlines the process by which GO bond proceeds can be accessed by the Authority.

The Bond Act authorizes the State to issue \$9.95 billion of GO bonds, \$9 billion of which will be used to develop the high-speed rail system. Prop 1A bond proceeds currently fund the environmental, planning, engineering, and administrative operations of the Authority and also will contribute to the construction of the high-speed rail system and real property and equipment acquisition. As discussed above, SB 1029, passed by the California Legislature and signed by Governor Brown in July 2012, appropriated Federal and State funding including the \$2.6 billion of Proposition 1A bond funds that are the subject of this Funding Plan for construction in the Central Valley.

The remaining \$950 million authorized under Prop 1A is allocated for capital improvements to commuter and intercity rail lines. This portion of Prop 1A bond proceeds may be used for connectivity, preliminary engineering, right-of-way acquisition, and the construction of tracks, structures, power systems, and stations. Additionally, rolling stock and related equipment, as well as other capital-related facilities and equipment, may be purchased with these bond funds for those systems. SB 1029 also appropriated the rest of these funds for statewide rail modernization and they have been put into use by local project sponsors.

In addition, Prop 1A stipulates that bond proceeds may not be used for more than 50 percent of the total cost of construction of each corridor or usable segment of the system.

On an ongoing basis, the Authority works with the Department of Finance to develop cash flow projections for the Authority’s funding needs. The Authority completes a biannual bond survey that is submitted to the Department of Finance to identify its needs for bond proceeds for the next five fiscal years.

The Department of Finance includes the Authority’s information as part of its cash flow projections for all state GO bonds, which are submitted to the State Treasurer’s Office (STO). The Proposition 1A bonds are sold as part of a combined issuance of State GO bonds for a variety of voter-approved purposes.

Anticipated Timing - Bond Funds

Prop 1A Bond funds will be used for pay-go funding of construction contracts. The Authority’s cash flow needs are projected on a quarterly basis which allow it to plan for forthcoming expenditures. The

Authority will work with Department of Finance and the STO to coordinate bond sales in order to provide adequate and timely funding for active projects. This follows the process that the State uses to sell GO bonds for infrastructure projects.

Cap-and-Trade Proceeds

The Legislature appropriated 25% of the annual auction proceeds of the Cap-and-Trade Program for the high-speed rail program, which are deposited in the Greenhouse Gas Reduction Fund (GGRF). Due to the nature of the Program, the annual auction proceeds are variable and may impact the Authority's funding stream but for planning purposes we use an average annual amount to account for that variation.

In June 2005, Governor Schwarzenegger issued an executive order to set a greenhouse gas (GHG) reduction target of 80% below 1990 levels by 2050. In 2006, Governor Schwarzenegger signed into law the California Global Warming Solutions Act of 2006 (Assembly Bill (AB) 32) which committed California to reducing its GHG emissions to 1990 levels by 2020.

The California Air Resources Board (ARB) was charged with developing a market-based strategy to reach these goals. To plan strategies for reducing emissions, ARB develops a Scoping Plan, which is updated on a five-year basis. In the Scoping Plan, ARB developed the Cap-and-Trade Program as the centerpiece of its GHG reduction strategy and created a market for GHG emissions that covers roughly 85% of the GHG emissions in the State. In addition, ARB identified several complimentary measures that will reduce GHG emissions from California's major economic sectors that are not directly covered under the Cap-and-Trade Program.

The Cap-and-Trade Program develops caps for annual emissions and then auctions emissions allowances to businesses covered by the cap. These auctions generate revenues that are then deposited in the GGRF and are used for a variety of programs aimed at reducing emissions. On June 20, 2014, the Governor signed the Budget Act of 2014 (SB 852 and SB 862), which included an appropriation of proceeds from the State's Cap-and-Trade Program to various programs and projects that will reduce greenhouse gas emissions in furtherance and accordance with AB 32. Specifically, SB 852 appropriated \$872 million in Cap-and-Trade auction proceeds from the GGRF in Fiscal Year (FY) 2014-15, with \$250 million going to the high-speed rail project. SB 862 also directed a \$400 million loan repayment to the Authority based on the project's financial needs. These one-time appropriations are further augmented by SB 862, known as the Cap-and-Trade Expenditure Plan (Plan), which established a programmatic structure for the continuous appropriation of annual Cap-and-Trade proceeds from the GGRF including 25% of all proceeds for the high-speed rail program. In making the continuous appropriation, the Legislature determined that these funds could be used to pay for planning and construction costs for the Phase 1 Blended System and/or to repay loans made to the Authority.

On September 8, 2016, Governor Brown signed Senate Bill 32 (SB 32) which required the state to cut emissions at least 40 percent below 1990 levels by 2030 as an interim goal on the way to achieving the original reduction goal set out in the 2005 Executive Order and as part of the State's compliance with

the Paris Agreement to reduce emissions by 2050. ARB will decide on the best strategies for the state to meet this new target.

Anticipated Time of Receipt – Cap-and-Trade

Annual Cap-and-Trade proceeds received during the construction period will be used directly for construction activities on a pay-go basis. This will allow the maximum amount of funding to be contributed directly to project costs during this time. The Authority receives its allocation of receipts on a quarterly basis.

In FY 2015-16, the first year of the continuous appropriation, the Authority received \$457 million in Cap-and-Trade proceeds. The cash balance as of November 1, 2016 in the Authority's portion of the GGRF stands at \$874 million.³ The 2016 Business Plan estimates that on average the Authority will receive \$500 million of Cap-and-Trade proceeds per year. At that rate, by FY2018-19, the Authority will receive the necessary funds to complete the test track.

Federal Funding

The Passenger Rail Investment and Improvement Act of 2008 (PRIIA) established the framework for the national high-speed rail and intercity passenger rail programs. In February 2009, President Obama signed the American Recovery and Reinvestment Act (ARRA) of 2009. Using PRIIA as a framework, Congress appropriated through ARRA an investment of \$8 billion for new high-speed and intercity passenger rail grants. Congress continued to build upon this ARRA funding by making available through annual appropriations in FY 2010 an additional \$2.1 billion for high-speed and inter-city rail across the country, bringing the total program funding to \$10.1 billion. California's program has received \$3.48 billion or 34 percent of these federal funds. Of this amount, approximately \$2.97 billion is committed to construction in the Central Valley. These funds are governed by the Authority's grant agreements with the Federal Railroad Administration (FRA), which were recently amended to better match the program's current status.

Anticipated Time of Receipt – Federal Funding

The ARRA and FY 2010 funds have been awarded and appropriated, making them available for project expenditures. The FRA agreed to provide the State with payments consistent with a Funding Contribution Plan described in the ARRA Grant Agreement, where such payment may temporarily exceed the State's contributory matching fund percentage. The State remains responsible for ensuring that the matching contribution at project completion is not less than the contributory matching fund percentage agreed to in the Grant Agreement. The current arrangement anticipates using ARRA funds first then matching with state funds. FY 2010 funds will then be used for project completion.

³ The Cap-and-Trade balance includes \$400 million that is available to the Authority pursuant to Health and Safety Code 39719.1.

C. Projected Ridership and Operating Revenue

Streets and Highways Code section 2704.08, subdivision (d)(1)(C) specifies inclusion of a projected ridership and operating revenue report.

The Authority plans to operate trains on the Valley to Valley Line after completing the testing and commissioning process on the test track. The Authority is not planning to run stand-alone service on the Central Valley Segment.⁴

San Joaquin Service Overview

The Amtrak San Joaquin service runs between the San Joaquin Valley, Sacramento, and the Bay Area. The San Joaquin service runs through the following counties: Sacramento, Contra Costa, Alameda, San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, Tulare, and Kern; with approximately eight million residents total.

The Amtrak San Joaquin service currently operates seven daily roundtrip trains (with the seventh added in June of 2016), with five running between Oakland and Bakersfield and two between Sacramento and Bakersfield. The San Joaquin service is the fifth busiest intercity passenger rail service in the nation, with nearly 1.2 million passengers a year.

From Bakersfield to Oakland, the San Joaquin service includes thirteen stops (315 miles) and from Bakersfield to Sacramento the service includes ten stops (282 miles). The minimum scheduled running time between Oakland and Bakersfield is currently six hours and five minutes with an average speed of 52 mph. Between Sacramento and Bakersfield, the minimum running time is currently five hours and ten minutes with an average speed of 55 mph. Maximum speed for the service is 79 mph.

Amtrak Thruway buses connect passengers from Bakersfield to Southern California destinations, from Stockton to Sacramento, and from Emeryville to San Francisco. Additional Amtrak Thruway buses are

⁴ The Authority's 2016 Business Plan and its associated technical reports include extensive analysis of the ridership and revenue forecasts on the Valley to Valley Line. These documents can be found here:

http://hsr.ca.gov/About/Business_Plans/2016_Business_Plan.html

Additionally, further technical information on the Authority's ridership and revenue forecasts is available on the Authority website here:

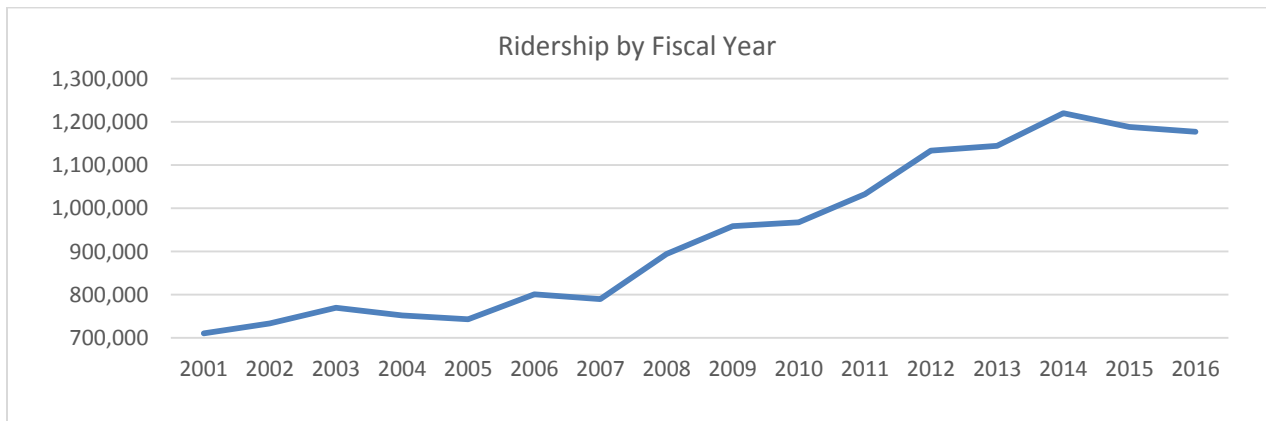
http://hsr.ca.gov/About/ridership_and_revenue.html

available at Oakland, Martinez, Merced and Hanford for other destinations around the state. Nearly 45% of passengers used the Amtrak Thruway bus service on one end of their travel.

Ridership and Operating Revenue

Ridership and operating revenue on the San Joaquin service has increased dramatically over the past 15 years. As **Exhibit C-1** indicates, ridership has increased 66% since 2000 and 47% since 2006.

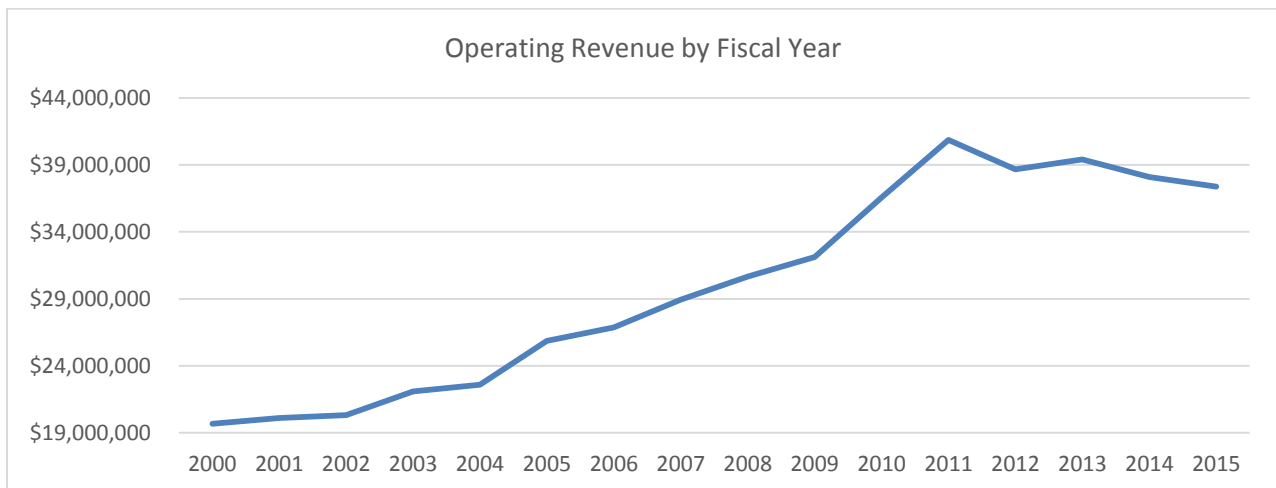
Exhibit C-1. San Joaquin Ridership



Note: Data is from several sources and includes slight difference in fiscal year definitions.

Operating revenues show a similar trend since 2000, with revenue increasing 90% since 2000 and 44% since 2006.

Exhibit C-2. San Joaquin Operating Revenue



Note: Data is from several sources and includes slight difference in fiscal year definitions.

Future Growth and Opportunity to Operate on High-Speed Rail Infrastructure

Only short-term projections are available for the San Joaquin service. Based on the San Joaquin Joint Powers Authority (SJJP) 2016 Business Plan, Amtrak projects that for Federal FY'17 ridership will be 1.25 million (a six percent increase from their forecast for Federal FY'16) and operating revenue will be \$41 million (a one percent increase from their forecast for Federal FY'16).

The SJJP is also currently working with the State to secure funding for capital improvements and operating funds for an 8th daily roundtrip trip (potentially a mid-corridor start and end) that would increase ridership and revenue. There is also strong potential for additional service to Sacramento, depending on time of day, according to the SJJP 2016 Business Plan.

Once the high-speed rail infrastructure is completed and if it is available for an extended period of time beyond testing of high-speed trains, the Authority will explore options for how best to put the infrastructure into service. One such option would be to transfer the San Joaquin service from the existing BNSF line to run on that new infrastructure. The newly built line would allow for faster speeds, decreasing the end to end run time by as much as 45 minutes. Faster service would improve the attractiveness of the service, increasing both ridership and operating revenue. The additional revenue that this could generate would reduce the amount of needed operating subsidy by Caltrans.

D. Projected Construction Cost

Streets and Highways Code section 2704.08, subdivision (d)(1)(D) requires inclusion of a construction cost projection including estimates of cost escalation during construction and appropriate reserves for contingencies.

The cost to complete the Central Valley segment and prepare the track for system testing is **\$7.813 billion** in YOES. This is equivalent to \$7.395 billion in 2015\$. Out of this amount, \$1.434 billion has been spent through FY15/16 and \$6.379 billion in (YOES) remains. The capital costs include escalation which adds **\$418 million** to the cost. Contingencies in the estimate include both allocated and unallocated contingency. The allocated and unallocated contingencies add up to **\$923 million**.

As with any major construction project, capital cost projections are updated as the project progresses. Changes within the various line items to the capital cost projections for the portions of the Central Valley segment that are part of the grant agreement are updated quarterly and reported to the FRA as a requirement of the ARRA and FY10 grant agreements. Overall systemwide capital costs are updated through biannual Business Plans.

As described above, although not necessary for this Funding Plan and Usable Segment and as part of the Valley to Valley Line, the Authority plans to use funds appropriated in SB 862 or to submit a separate Funding Plan that would request Prop 1A funds to expand the system further and/or purchase the trains to begin service. The 2016 Business Plan estimates that the initial order of 16 trainsets will cost \$865 million.

Capital Cost Approach and Methodology

The capital cost estimate is a Class 3 estimate as defined by the Association for the Advancement of Cost Engineering. Class 3 estimates are typically prepared to form the basis for budget authorization, appropriation, and/or funding. As such, they provide the initial control estimate against which actual costs and resources are monitored. The level of engineering ranges from 10% to 40% complete and typically includes: horizontal and vertical alignments, typical cross sections, preliminary roadway and structure design, preliminary assessment of utility impacts, preliminary identification of systems facilities, development of environmental footprints and right-of-way requirements and initial constructability reviews. Further detailed information on the cost estimating process is located at: http://hsr.ca.gov/docs/about/business_plans/2016_Business_Plan_Basis_of_Estimate.pdf

The methodology used for generating the capital cost estimate is consistent with FRA guidelines for estimating capital costs. The FRA guidance enables FRA-funded projects to develop budget baselines that summarize to the Standard Cost Category (SCC). Where the level of design did not support quantity

measurements, parametric estimating techniques were utilized. Parametric estimating techniques utilize historical data and other industry published materials to develop unit pricing for similar work scope. The methodology includes:

Historical Bid Price Method: Historical bid prices are typically used to develop costs for common construction elements. When using this method, the time of bid and conditions of the historical project used for pricing is taken into account and factors applied as needed

Unit Cost Analysis Method: The estimated unit cost analysis method is typically used to develop costs for complex construction elements including but not limited to viaducts, retained earth systems, tunneling and underground structures. This method allows for unit costs to be developed based on current local construction and market conditions, such as changes which might affect productivity or the cost of labor or materials

Contractor Mark Ups: Contractor margin is added on top of the fully burdened direct construction cost to have a complete in place cost. This approach is based on the contractor's field staffing which includes indirect costs such as office spaces, field consumables, bonds, insurance, and contractor's home office overhead and margin.

Quantity Take Offs: The development of construction costs for each construction activity was identified and quantified from the preliminary design documents developed by the Authority and its consultants. The task of material quantity takeoffs involved preparation of estimated quantities either by direct measurement and calculation of construction elements that are shown in design drawings, sketches, electronically calculated from Computer-Aided Design and Drafting files, or established as an allowance quantity based on professional experience and judgment

Allocated and Unallocated Contingencies: Contingency is typically added to a particular item or group of items by the use of percentage multipliers. Contingency is generally greatest for the early stage of project development and decreases with advancement in the level of engineering design and pricing detail. During the preliminary design of the high-speed rail project, the limited level of design information that is available requires the use of contingency allowances that are allocated against specific construction or procurement cost categories. The percentage selected for a given cost category are generally based on level of definition of the scope of work involved and substantiated by professional judgment and experience relative to level of uncertainty and historical cost variability typically seen for work within a particular cost category.

For the purposes of this estimating program, contingency is divided into two major categories – allocated and unallocated. Additionally, the specific contract contingencies approved by the Board for each construction contract are included as part of the allocated contingency. These contingencies were set based on a risk management approach that quantified the risks involved in each contract based on Monte Carlo simulations. Reporting against the contingencies is provided monthly through the Board's

Finance and Audit Committee.

Allowances and Other Costs: Inclusion of allowances to account for environmental clearance (which have been achieved and are included in the amounts spent to date), temporary facilities, and right of way costs.

Program Management and Implementation: Program implementation costs are included to represent the costs of engineering, project and construction management, contract administration, permits and fees, and training/start-up/testing. These add-on costs are calculated as a percentage of construction costs including allocated contingency (applied individually and not cumulatively and excluding right-of-way costs) and presented under the Professional Services cost category in the estimate.

Capital Cost Estimates by SCC

The cost estimate has been broken out into ten cost categories consistent with the SCCs. **Exhibit D-1** below provides the capital cost estimate for the segment by cost category, including everything necessary to complete the Central Valley segment. This estimate was created specifically for purposes of this Funding Plan and reflects the precise scope described here.⁵

Exhibit D-1 – Central Valley Segment Capital Cost by Category⁶

Capital Costs	Cost to Complete		Expended Through FY15/16	Total Capital Cost
	(2015 \$)	(YOE \$)	(YOE \$)	(YOE \$)
10 TRACK STRUCTURES & TRACK	1,228	1,305	202	1,507
20 STATIONS, TERMINALS, INTERMODAL	137	145	4	148
30 SUPPORT FACILITIES: YARDS, SHOPS, ADMIN. BLDGS	106	118	-	118
40 SITEWORK, RIGHT OF WAY, LAND, EXISTING IMPROVEMENTS	1,619	1,750	798	2,549
50 COMMUNICATIONS & SIGNALING	292	309	-	309
60 ELECTRIC TRACTION	512	540	-	540
70 VEHICLES	-	-	-	-
80 PROFESSIONAL SERVICES	1,191	1,289	431	1,720
Subtotal	5,087	5,456	1,434	6,890
Total Contingency	874	923	-	923
Central Valley Segment Total	5,961	6,379	1,434	7,813

Note: Totals may not sum due to rounding.

⁵ This is a different summary of the cost estimates than what was included in the Business Plan since the scope and costs were built up in a different manner.

⁶ Does not include already-expended project development costs (e.g. environmental clearance).

All the physical elements contemplated in this Funding Plan related to electric high-speed trains running, including for testing, on the Central Valley segment (*e.g.*, electrification equipment, etc.) are not necessary for San Joaquin service to operate. Without those elements, the total cost of the Central Valley segment would be \$6.69 billion.

E. Material Changes

Streets and Highways Code section 2704.08, subdivision (d)(1)(E) requires inclusion of a report describing any material changes from the plan submitted pursuant to subdivision (c) for this corridor or usable segment thereof.

The Authority has continued to advance the program on all fronts since the release of the 2011 Funding Plan including in the areas of construction, environmental clearance, right-of-way acquisition, construction, funding, risk management and business model. This section discusses the changes between this Funding Plan and the Funding Plan submitted pursuant to S&H Code section 2704.08 subdivision (c) in November 2011.

Changes since the 2011 Funding Plan

Usable Segment

The Funding Plan submitted in November 2011 described two Usable Segments. The two Usable Segments described in the 2011 Funding Plan stretched from Merced to the San Fernando Valley and from San Jose and Merced to Bakersfield. Their descriptions as Usable Segments were aligned to the Draft 2012 Business Plan. This Funding Plan has updated the Usable Segment to more closely align with the Legislature's appropriation and guidance and the staging of the development of the entire Valley to Valley Line as described in the 2016 Business Plan. This Usable Segment also aligns with the construction that is currently underway in the Central Valley. This Usable Segment was included as part of both of the Usable Segments in the 2011 Funding Plan.

Funding and Appropriation

Subsequent to the release of the 2011 Funding Plan, SB1029 was approved by the Legislature and signed into law by Governor Brown on July 6, 2012. SB 1029 included the appropriation of the necessary Federal and State funding to begin construction and to match the Federal funds and the Prop 1A funds.

As discussed in **Section B** of this Funding Plan, in 2014, the Legislature approved SB 862, which continuously appropriated 25 percent of funds from the GGRF for the high-speed rail program. Additionally, the Authority received \$250 million in FY 2014-15 and \$400 million was made available starting in FY 2015-16. This provides the Authority with a continuous funding source for future sections of the project. For additional information, see **Section B** of this Funding Plan.

Construction Cost Projections

The 2011 Funding Plan included a construction estimate of \$6.0 billion, inclusive of \$150 million for pre-construction activities and right of way acquisition. The 2011 Funding Plan only contemplated the construction of civil works and track within the \$6.0 billion cost estimate. However, this Funding Plan incorporates the full complement of civil works, track, infrastructure, systems, power, heavy maintenance facility and stations that will provide a fully operational segment. The capital cost estimate for this entire scope of work is \$7.813 billion. This cost estimate has been revised to include up-to-date information from the executed contracts for CP 1, CP 2-3 and CP-4 infrastructure that will enable the segment to be ready for high-speed train system testing. Further information relating to the construction cost estimate can be found in **Section D** of this Funding Plan.

Business Model and Contracts

The Authority has executed the contracts for CP 1, CP 2-3 and CP 4 with bids coming in under engineer's estimates. See **Section F** of this Funding Plan for further information on these construction contracts and the business model.

Environmental Approvals

In order to proceed to construction, the Authority has completed all project-level environmental documents for this segment. These documents are as follows:

1. In September 2012 the FRA issued a Record of Decision (ROD) approving the "Hybrid Alternative" alignment for the Merced to Fresno project section, which was selected by the Authority's Board of Directors in May 2012. The Final EIR/EIS for the Merced to Fresno project section, which further describes the Hybrid Alternative, is available at:
http://www.hsr.ca.gov/Programs/Environmental_Planning/final_merced_fresno.html
2. In June 2014 the FRA issued a ROD approving the alignment for the Fresno to Bakersfield project section, which was selected by the Authority's Board of Directors in May 2014. The Final EIR/EIS for the Fresno to Bakersfield project section is available at:
http://www.hsr.ca.gov/Programs/Environmental_Planning/final_fresno_bakersfield.html

Risk Management Program

Since the 2011 Funding Plan was adopted, the Authority has implemented a robust Risk Management Program that uses state-of-the-practice risk management tools and analyses (such as Monte Carlo simulations) in order to flag early warning signs associated with potential risks related to construction and operation of high-speed rail service. These analyses are used to facilitate and drive prudent and timely risk response actions before program cost and schedule have the potential to be impacted.

- The Risk Management Program has a direct reporting relationship established with the Board Finance and Audit Committee. This direct reporting enables daylighting to the risk management approach and encourages informed decisions.
- Pre-bid schedule and cost risk analyses have been undertaken for each of the CPs. The identification of major risks and contingency recommendations in these pre-bid analyses were validated by the eventual contractor's scope and schedules.
- The risk management team is assisting other teams within the program in making significant decisions using a data-driven analysis approach. For example, the probabilistic analysis performed on the containment of railroad intrusion protection barrier walls provided us, the FRA, and adjacent railroads an additional mechanism to make informed decisions.
- Through ongoing efforts, various trends have been identified, both positive and negative, to the program cost and schedule milestones.
- The risk management team is working in concert with all parties involved in the delivery of the program to identify and implement risk mitigation strategies and potential savings such as alternative design and construction approaches.
- Lessons learned are being applied from early CPs to better quantify the uncertainties related to schedules and costs and improve the underlying risk analyses for future CPs and the program.

As discussed in the 2016 Business Plan, we have developed and implemented a risk management plan and a quality management system that are designed to manage and mitigate risks and to ensure that the high-speed rail program meets or exceeds acceptable industry and government standards. For more information on risk management refer to the 2016 Business Plan:

http://www.hsr.ca.gov/docs/about/business_plans/2016_BusinessPlan.pdf

F. Terms and Conditions of Agreements

Streets and Highways Code section 2704.08, subdivision (d)(1)(F) requires a description of the terms and conditions associated with any agreement proposed to be entered into by the authority and any other party for the construction or operation of passenger train service along the corridor or usable segment thereof.

The 2016 Business Plan describes the Authority's business model, construction contracts, funding agreements, and the anticipated roles of various parties in the development of the California High-Speed Rail program, including for the Central Valley segment. This section of the Funding Plan includes both details of the existing agreements and contracts as well as a subsection on the overall business model.

The Authority has moved forward with a range of agreements necessary for construction of the segment. This section describes the funding agreements between the Authority and its federal funding and oversight partners; construction agreements (both executed and planned); and other agreements anticipated for delivery of the other elements of the Central Valley segment as part of the Valley to Valley Line (although contractually, these elements would not depend upon the Valley to Valley Line).

Funding Agreements

The Authority has entered into agreements with the FRA (FRA Agreements) in connection with the two federal grants that the Authority has been awarded. **Exhibit F-1** describes key elements and terms of the FRA Agreements (ARRA Agreement, Amendment 6 and FY 10 Agreement).

Exhibit F-1. FRA Grant/Cooperative Agreements – Key Relevant Elements and Terms

Key Elements	Key Terms
Parties to the Agreement	<ul style="list-style-type: none">California High-Speed Rail Authority (Authority)US Department of Transportation, Federal Railroad Administration (FRA)
Agreements	<ul style="list-style-type: none">FR-HSR-0009-10-01-06 (ARRA Agreement, Amendment 6)FR-HSR-0118-12-01-00 (FY 10 Agreement)

Key Elements	Key Terms
Performance Period	From 8/17/2010 to 12/31/2022 (ARRA) and from 12/16/2009 to 12/31/2022 (FY 10).
Total Funding Amount	\$3,481,176,231.00 total federal funds: \$2,552,556,231.00 from ARRA, and \$928,620,000.00 from FY 10 programs
Scope of Project	<ul style="list-style-type: none"> As used in the FRA Agreements, the term “Project” refers to the overall effort identified in Section 8 of the ARRA Grant/Cooperative Agreement and as that term is defined in Subsection 1(h) of Attachment 2. (ARRA Agreement, Attachment 2, General Provisions) The ARRA Agreement Statement of Work, Attachment 3 incorporates Tasks 1-4 which define preliminary engineering and environmental work and pre-construction activities for seven Phase 1 sections, as well as project administration and indirect costs. The ARRA Agreement Statement of Work, Attachment 3 also incorporates Tasks 5- 10 which defines activities for construction of the Initial Central Valley Section including: (5) Program, Project, and Construction Management; (6) Real Property Acquisition and Environmental Mitigation; (7) Early Work Program; (8) Final Design and Construction Contract Work; (9) Interim Use Project Reserve; and (10) Unallocated Contingency. Note: Task 7 is no longer applicable.

Key Elements	Key Terms
Delivery Responsibilities	<p>The Grantee (the Authority) is responsible for furnishing all personnel, facilities, equipment, and other materials and services (except as otherwise specified in the agreement) necessary to perform the Project, as set forth in the Statement of Work (Attachment 3), and any supplements thereto (<i>ARRA Agreement, Attachment 1 Section 2. Scope, and Attachment 3</i>)</p> <p>The FRA will provide, on an “as available” basis, one professional staff person, to be designated as the Grant Manager, to review work or work products in progress, and arrange for the review of the Project results upon completion. Since the award was made as a cooperative agreement, FRA has substantial programmatic involvement. Substantial involvement means that, after award, technical, administrative, or FRA programmatic staff will assist, guide, coordinate, or otherwise participate in Project activities. (<i>Attachment 1, Section 3. Awarding Agency Participation</i>)</p>
Payments	<p>The ARRA agreement includes three payment provisions – reimbursement basis, advanced payment and working capital advance as defined in Attachments 1 and 2, Section 7 - Payments. Upon receipt of a payment request and adequate accompanying information (invoices in accordance with applicable cost principles), FRA will authorize payment to the Authority providing the Authority: (i) is complying with its obligations under the Agreement, (ii) has satisfied FRA that it needs the requested Federal funds during the requisition period, and (iii) is making adequate and timely progress toward Project completion. If all of these circumstances are present, FRA may pay allowable costs incurred consistent with the detailed Project Budget.</p>
Environmental Responsibilities	<p>Under Task 1 and working collaboratively with FRA, the Authority is responsible for preparing the environmental analysis and documentation for each Project Section necessary to comply with the National Environmental Policy Act (NEPA), and other associated Federal environmental laws including, but not limited to, Section 106 of the National Historic Preservation Act, Section 4(f) of the Department of Transportation Act, Section 7 of the Endangered Species Act, and the General Conformity requirements of the Clean Air Act. The Authority is also responsible for complying with state laws as applicable that may</p>

Key Elements	Key Terms
	<p>include the California Environmental Quality Act.</p> <p>FRA is the lead Federal agency responsible for NEPA compliance and the Authority is the lead state agency responsible with complying with all applicable state environmental laws. The Authority and FRA are jointly responsible for ensuring that the environmental review process is being conducted in accordance with relevant environmental laws. As part of the environmental review process, the Authority maintains all documents developed or received by the Authority that support agency decision making and makes them available to FRA upon request.</p> <p>In addition, the Authority has agreed to additional detailed provisions about how the work will be conducted with respect to its environmental responsibilities for the Project.</p> <p><i>(Task 1 Environmental Review – Attachment 3, p 42)</i></p>
Reporting Responsibilities	The Authority’s reporting responsibilities are found in Attachment 1, Section 11 – 12, Attachment 1B, Section 6 (ARRA Agreement, including progress reports, quarterly reports, and interim or final reports.)
Certification Responsibilities	<p>The following are among the certification responsibilities imposed upon the Authority (or other agencies of the State of California, in some cases) under the provisions of American Recovery and Reinvestment Act of 2009 Clauses <i>(Grant/Cooperative Agreement, Attachment 1B)</i>:</p> <ul style="list-style-type: none"> a. Maintenance of Effort Certification (Recovery Act Section 1201) b. Responsible Investments Certification (Recovery Act Section 1511) c. Appropriate Use of Funds Certification (Recovery Act Section 1607)
Governance Responsibilities	<p>The Grant/Cooperative Agreement incorporates federal governing regulations. The Authority acknowledges that its performance shall be governed by and in compliance with the following Administrative and Cost Principles for State, Local and/or Tribal Governmental Entities:</p> <ul style="list-style-type: none"> 1. 49 C.F.R. Part 18, “Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments” 2. OMB Circular A-87, “Cost Principles for State and Local

Key Elements	Key Terms
	Governments,” as amended.
Other Responsibilities	<p>The Grantee shall comply with the Buy America provisions set forth in 49 U.S.C. §24405(a) for the Project requiring the use of steel, iron, and manufactured goods produced in the United States, in accordance with the conditions therein set forth. <i>(Attachment 1, Section 17. Buy America)</i></p> <p>The Project also shall comply with various prevailing wage requirements. <i>(Section 16. Davis- Bacon Act Provisions)</i></p> <p>To the extent applicable, the Authority agreed to comply with any Federal regulations, laws, or policy and other guidance that FRA or the United States Department of Transportation may issue pertaining to safety oversight in general, and in the performance of the Agreement, in particular. <i>(Section 18. Safety Oversight)</i></p> <p>The Authority agreed to comply with all civil rights laws and regulations, in accordance with applicable Federal directives, except to the extent that the FRA determines otherwise in writing. <i>(Section 19. Civil Rights)</i></p>

Sources: ARRA Grant Agreement, No. FR-HSR-0009-10-01-06 (Amendment 6) and FY 10 Grant Agreement, No. FR-HSR-0118-12-01-00

As described in **Section A**, the Central Valley segment is being delivered through a series of agreements, commencing with multiple CPs summarized in **Section A** (See **Exhibit A-2**. Central Valley Segment – Planned Elements).

CP 1 is being delivered under a design-build (DB) model. See **Exhibit F-2** for key elements and terms of the Design-Build Construction Agreement for CP 1.

Exhibit F-2. Design-Build Construction Agreement for CP 1

Key Elements	Key Terms
Parties to the Agreement	<ul style="list-style-type: none"> California High-Speed Rail Authority (Authority) Tutor-Perini/Zachry/Parsons, a joint venture, comprised of Tutor Perini Corporation, Zachry Construction Corporation and Parsons Transportation Group (a wholly owned subsidiary of Parsons Corporation)

Key Elements	Key Terms
Agreement Number	HSR 13-06 (CP 1)
Purpose of Agreement	Design-build construction
Performance Period	2013 to 2019
Total Contract Price	Current Contract price is \$1,289,509,211, which consists of base bid of \$969,988,000 + \$53,000,000 provisional sums + \$266,521,211 in current change orders (CO). This CO amount includes the \$153,399,844 CO for the north extension and \$49,900,000 for the 17-month time extension. The change order for acceleration in the amount of \$13,612,000 has not been executed yet. (<i>Attachment B, p. 8 of 99 in Signature Document</i>)
Scope of Projects	<p>The scope of CP 1 consists of civil works for the at-grade and aerial track sections over a 32-mile section from Avenue 19 near the Madera Amtrak Station in Madera County to East American Avenue in Fresno County. It includes 20 grade separations, 2 viaducts, 1 tunnel and a bridge river crossing over the San Joaquin River. Major design and construction elements for CP 1 include the following areas:</p> <ul style="list-style-type: none"> • Surveys, Mapping and Geotechnical Studies • Site Clearing, Demolition and Removal of Hazardous Materials • Utility and Third Party Relocation • Railroad Relocation • Scheduling and Coordination • Grading, Embankment and Drainage • Structure Construction and Foundation Work • Environmental Compliance and Mitigation • Paving, Re-striping, Landscaping and Traffic Signals
Davis-Bacon Act	Compliance required (<i>Attachment H</i>)
Buy America	Compliance required (<i>Attachment J</i>)
Conditions of Payment	Pursuant to Invoicing and Payment Clauses of General Provisions for State Contracts and the Prompt Payment Act

Key Elements	Key Terms
Payment Bonds	100 percent of the Total Contract Price (<i>Attachment E, pg. 12 of 99 in Signature Document</i>)
Performance Bonds	50 Percent of the Total Contract Price (<i>Attachment F, pg. 24 of 99 in Signature Document</i>)
Guaranty	Parsons Corporation (Parent company of Parsons Transportation Group, a member of the Joint Venture) (<i>Attachment G, pg. 37 of 99 in Signature Document</i>)
Liquidated Damages	Cap on Liquidated Damages is 10% of the Total Contract Price (or \$128,950,321) (<i>Attachment B, page 8 of 99 in Signature Document</i>)
Small Business Participation	The Authority has established a 30 percent goal for Small Business participation, which includes goals of 10 percent for Disadvantaged Business Enterprises (DBE) and 3 percent for Disabled Veteran Business Enterprises (DVBE). Small Business participation on CP 1 includes 30-plus small businesses, or DBE/DVBE firms, working on the project. (<i>Fact Sheet</i>)
Disputes	The Contract provides for the establishment and operation of a Disputes Resolution Board (DRB) to assist in resolving disputes and claims among Authority, Contractor, and others in respect to the Project. (<i>Attachment I, pg. 91 of 99 in Signature Document</i>) If the Parties cannot resolve claims informally or through the DRB process, then either Party has the right to bring unresolved claims where the amount in controversy exceeds \$1,000,000 to mandatory binding arbitration.

For more information on CP 1 please refer to:

http://www.hsr.ca.gov/Programs/Construction/about_construction_package_1.html

CP 2-3 is being delivered under a DB model. See **Exhibit F-3** for key elements and terms of the Design-Build Construction Agreement for CP 2-3.

Exhibit F-3. Design-Build Construction Agreement for CP 2-3

Key Elements	Key Terms
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Key Elements	Key Terms
Parties to the Agreement	<ul style="list-style-type: none"> California High-Speed Rail Authority (Authority) Dragados/Flatiron, a joint venture, comprised of Dragados USA, Inc. and Flatiron West, Inc.
Agreement Number	HSR 13-57 (CP 2-3)
Purpose of Agreement	Design-build construction
Performance Period	2015 to 2019
Total Contract Price	\$1,365,335,890 (includes Fixed Bid Price of \$1,205,335,890 and Total Provisional Sums of \$160,000,000, Hazardous Waste Remediation in the amount of \$29,232,000 is authorized for change orders. Presently, there is \$6,167,929 in executed change orders) (<i>Attachment B, pg. 7 of 186 in Signature Document</i>)
Scope of Projects	<p>The scope of CP 2-3 consists of design and construction of civil works for a 65-mile section from the terminus of CP 1 at East American Avenue in Fresno to approximately one mile north of the Tulare-Kern County line. Major work elements include the design and construction of at-grade, retained fill and aerial sections of high-speed rail and will be performed in the following areas:</p> <ul style="list-style-type: none"> <i>Project Management, Scheduling, Investigation and Coordination</i> <i>Geotechnical Engineering and Seismology Studies and Surveys</i> <i>Surveys, Mapping and Investigations,</i> <i>Clearing and Demolition of ROW</i> <i>Utility and Third Party Relocation, Including Railroads</i> <i>Environmental Compliance and Mitigation</i> <i>Grading, Embankment and Drainage</i> <i>Structure Construction and Foundation Work</i> <i>Paving, Re-striping, Landscaping and Traffic Signals</i> <p>(<i>Fact Sheet, June 2014</i>)</p>
Davis-Bacon Act	Compliance required (<i>Attachment H, pg. 67 of 186 in Signature Document</i>)

Key Elements	Key Terms
Buy America	Compliance required (<i>Attachment J, pg. 163 of 186 in Signature Document</i>)
Conditions of Payment	Pursuant to Invoicing and Payment Clause of General Provisions for State Contracts and Prompt Payment Act
Payment Bonds	100 percent of the Total Contract Price (<i>Attachment E, pg. 13 of 186 in Signature Document</i>)
Performance Bonds	50 Percent of the Total Contract / Price (<i>Attachment F, pg. 17 of 186 in Signature Document</i>)
Guaranty	Dragados, S.A. (Parent company of Dragados USA, Inc., a member of the Joint Venture) and Flatiron Constructors, Inc. (<i>Attachment G, pg. 58 of 186 in Signature Document</i>)
Liquidated Damages	Cap on Liquidated Damages is 10% of the Total Contract Price (or \$136,533,589) (<i>Attachment B, page 7 of 186 in Signature Document</i>)
Small Business Participation	The Authority has established a 30 percent goal for Small Business participation, which includes goals of 10 percent for DBEs and 3 percent for DVBES. The Authority Board of Directors' decision is in accordance with agreements with the FRA that require the Authority to develop and implement a Small and Disadvantaged Business Enterprise Program to ensure that small businesses, including DBEs, have an opportunity to bid on the rail contracts and participate in construction of the project. (<i>Fact Sheet</i>)
Disputes	The Contract provides for the establishment and operation of a DRB to assist in resolving disputes and claims among Authority, Contractor, and others in respect to the Project. (<i>Attachment I, pg. 156 of 186 in Signature Document</i>) If the Parties cannot resolve claims informally or through the DRB process, then either Party has the right to bring unresolved claims to arbitration.
Fact Sheet	http://www.hsr.ca.gov/docs/programs/construction/CP2_3_factsheet_FINAL_061014.pdf

For more information on CP 2-3 please refer to:

http://www.hsr.ca.gov/Programs/Construction/about_construction_package_2_3.html

CP 4 is being delivered under a DB model. See **Exhibit F-4** for key elements and terms of the Design-Build Construction Agreement for CP 4.

Exhibit F-4. Design-Build Construction Agreement for CP 4

Key Elements	Key Terms
Parties to the Agreement	<ul style="list-style-type: none"> California High-Speed Rail Authority (Authority) California Rail Builders is a special purpose entity of Ferrovial Agroman US Corp
Agreement Number	HSR 14-32 (CP 4)
Purpose of Agreement	Design-build construction
Performance Period	2016 to 2019
Total Contract Price	Contract Price: \$337,247,000 + \$107,000,000 provisional sums for a total contract price of \$444,247,000. \$10,310,000.00 is also authorized for hazardous waste remediation change orders. Executed change orders to date = \$1,434,127 (<i>Executed Signature Document: Attachment B: Prices</i>)
Scope of Projects (from Scope of Work Package – Contract Requirements)	<p>The scope of CP 4 consists of design and construction of civil works for approximately 22-miles through the Central Valley beginning one mile north of the Tulare-Kern County line at the southern terminus of CP 2-3 to Poplar Avenue. Major work includes but is not limited to the following:</p> <ul style="list-style-type: none"> Project management and administration Utility Investigation, Coordination and Protection and Relocation Demolition and Clearing of Right-of-Way Code Assessment Completing, Coordinating, Securing Approval and Executing Final Permitting and Utility Agreements Survey and Mapping Subsurface Investigations Geotechnical Engineering and Seismology Design, engineering and analysis Estimating

Key Elements	Key Terms
	<ul style="list-style-type: none"> • Value Engineering and Possible Accepted Alternative Technical Concepts Coordination with Jurisdictional Authorities (i.e. governments, FRA, the California Public Utilities Commission, etc.) • Coordination with Adjacent Railroads (BNSF) • Coordination with Local Communities • Coordination with Adjacent High-Speed Rail Works
Davis-Bacon Act	Compliance required (<i>Attachment H: Signature Document</i>)
Buy America	Compliance required (<i>Attachment J: Signature Document</i>)
Conditions of Payment	Pursuant to Invoicing and Payment Clause of General Provisions for State Contracts
Payment Bonds	100 percent of the Total Contract Price (<i>Attachment E: Signature Document</i>)
Performance Bonds	50 Percent of the Total Contract Price (<i>Attachment F: Signature Document</i>)
Guaranty	Ferrovial Agroman, S.A. and Griffith Company (<i>Attachment G: Signature Document</i>)
Liquidated Damages	Cap on Liquidated Damages is 10% of the Total Contract Price (or \$44,424,700) (<i>Attachment B: Signature Document</i>)
Small Business Participation	The Authority has established a 30 percent goal for Small Business participation, which includes goals of 10 percent for DBEs and 3 percent for DVBEs. The Authority Board of Directors' decision is in accordance with agreements with the FRA that require the Authority to develop and implement a Small and Disadvantaged Business Enterprise Program to ensure that small businesses, including DBEs, have an opportunity to bid on the rail contracts and participate in construction of the project. (<i>Fact Sheet</i>)
Disputes	The Contract provides for the establishment and operation of a DRB to assist in resolving disputes and claims among Authority, Contractor, and others in respect to the Project. (<i>Attachment I: Signature Document</i>)
About CP 4	http://www.hsr.ca.gov/Programs/Construction/about_construction_package_4.html

For more information on CP 4 please refer to:

http://www.hsr.ca.gov/Programs/Construction/about_construction_package_4.html

Delivery Model Overview

The rest of this section describes the Authority's business model and overall delivery approach based on the 2016 Business Plan. The delivery model underpins the lease and franchise agreements that the Authority plans to enter for the construction and operation of the system. The delivery model for the Valley to Valley Line was developed based on best practices and industry feedback. Key objectives include:

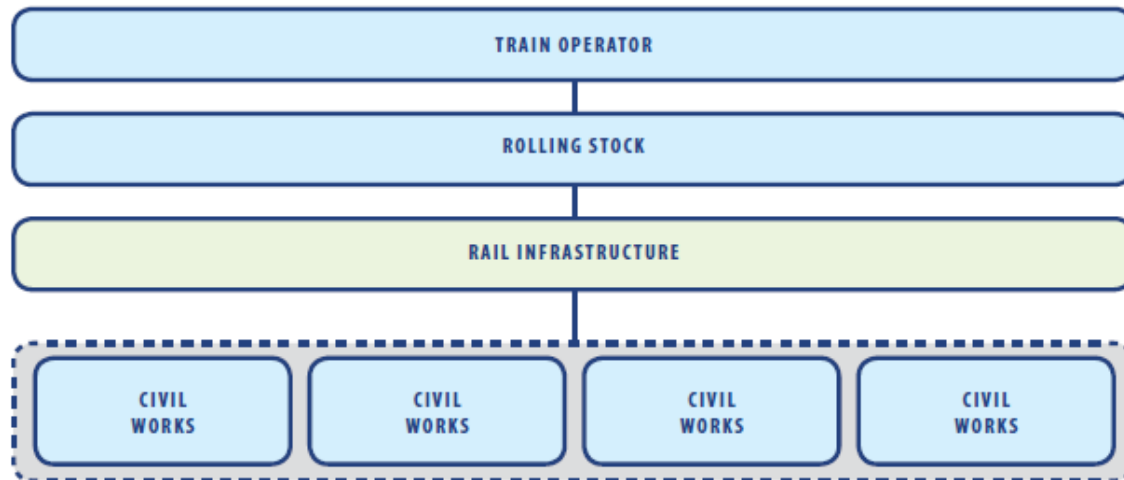
- Provide California citizens a highly safe, reliable and commercially successful system while reducing the cost of constructing and maintaining the system and transferring operations and asset performance responsibilities and related risks to the private sector.
- Designing, constructing and integrating complex component parts into a seamless, safe and commercially successful system. Work will be undertaken with two key private sector partners, a train operator and an infrastructure provider, to carefully manage technical and operational integration and connections between components and geographic segments to ensure efficiency and compatibility.

Through every stage of the process, the State will provide policy oversight and appropriately manage the program to ensure that the public's interests are served.

The delivery model consists of different strategies for delivering each of the major elements of a high-speed rail system – commercial and train operations, rolling stock, rail infrastructure (track, systems, and traction power), and construction of the civil works. Each element is unique and requires a delivery approach that is tailored to its characteristics and that, when combined, fit together into a commercially successful model. This subsection describes how our delivery model addresses each of these elements and the key tenets of each of the main contracts that the Authority plans to enter into.

The existing civil works contracts follow this delivery model and the remaining elements will be procured consistent with the approach laid out here. Details on the civil works contracts are included above.

Exhibit F-5. Delivery Model Structure



California High Speed Rail Operations

There will be one common operator for the entire system. While there are expected to be other users of joint system assets (for example in the Peninsula corridor), a single end-to-end operator will run the high-speed trains in California.

This operator will be procured early in the construction (Pre-Operations) phase under a flexible contract designed to support the maturing phases of the project. This will give the operator the opportunity to provide valuable input during the planning and development stages of the system that can increase asset performance and revenues while reducing costs. Key operating and cost risks will be transferred during the ramp-up phase and full revenue risk once revenues are proven. While the operator will be procured early, they will not begin to operate on the Central Valley segment until it is connected to a larger segment (i.e. the Valley to Valley Line) as described in other parts of this Funding Plan.

If the San Joaquin service will operate on the high-speed rail infrastructure, future agreements will describe the exact terms and conditions of that service's operations.

Rail Infrastructure (Track, Systems, Power)

Complex rail infrastructure elements, such as systems, track, traction power and overhead catenary should be compatible across the entire system and could be combined into a single procurement to enhance cost efficiency and reduce duplication and the number of integration points. Industry feedback was clear that the most integration and interface risk resides in the rail infrastructure components of a high-speed rail system. Through this contract, a major private sector company or consortium will be responsible for long-term rail infrastructure performance and integration with other elements of the system.

A single rail infrastructure provider will be procured under a long-term contract that could include financing. Feedback provided by industry indicated that there is strong opportunity to reduce construction and maintenance costs and improve performance through a model that uses large, integrated contracts combining construction and maintenance for several elements. The contract with the rail infrastructure provider will be on a long-term performance basis where payment deductions are incurred for failure to meet established objectives.

The initial procurement for the rail infrastructure will include the Central Valley segment as part of the Valley to Valley Line procurement and may include option pricing to extend the rail infrastructure to the rest of the Valley to Valley Line and the full Phase 1 build out. Providing the infrastructure for the Central Valley segment is not dependent on the rest of the Valley to Valley Line and could be delivered separately. The rail infrastructure provider will be a key long-term partner along with the operator and will be responsible for integrating the other elements of the high-speed rail system (rolling stock, civil works, facilities) such that the system works seamlessly both horizontally (across geographical segments) and vertically (between different elements). The infrastructure provider will be responsible for maintaining the underlying civil works across the system.

For further information relating to the procurement plan and the agreements for construction and operation of the system that the Authority plans to enter into please refer to the 2016 Business Plan: http://www.hsr.ca.gov/docs/about/business_plans/2016_BusinessPlan.pdf.

Appendix I – Source and Reference Documents

Source and Reference Documents
<p>Air Resources Board, Summary Results Reports</p> <p>http://www.arb.ca.gov/cc/capandtrade/auction/auction.htm</p>
<p>Air Resources Board, California Post Auction Public Proceeds Report</p> <p>https://www.arb.ca.gov/cc/capandtrade/auction/aug-2016/ca_proceeds_report.pdf</p>
<p>Air Resources Board, Estimate of State-Auctioned Allowances, by Fiscal Year, December 2, 2012</p> <p>http://www.arb.ca.gov/cc/capandtrade/stateauction.pdf</p>
<p>American Recovery and Reinvestment Act of 2009, Public Law 111-5 (February 17, 2009)</p> <p>http://www.gpo.gov/fdsys/pkg/PLAW-111publ5/pdf/PLAW-111publ5.pdf</p>
<p>Assembly Bill 32 (AB 32), Chapter 488, Approved by Governor on September 27, 2006.</p> <p>http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=200520060AB32</p>
<p>California High Speed Rail Authority, 2012 Business Plan</p> <p>http://www.hsr.ca.gov/docs/about/business_plans/BPlan_2012_rpt.pdf</p>
<p>California High Speed Rail Authority, 2014 Business Plan</p> <p>http://www.hsr.ca.gov/docs/about/business_plans/BPlan_2014_Business_Plan_Final.pdf</p>
<p>California High Speed Rail Authority, 2016 Business Plan</p> <p>http://hsr.ca.gov/About/Business_Plans/2016_Business_Plan.html</p>
<p>California High-Speed Rail Authority, Resolution HSRA11-22 and Resolution HSRA11-23 of November 3, 2011</p> <p>http://www.hsr.ca.gov/docs/brdmeetings/2011/November/brdmtg1111_agenda4_HSRA_1122.pdf &</p> <p>http://www.hsr.ca.gov/docs/brdmeetings/2011/November/brdmtg1111_agenda4_HSRA_1123.pdf</p>
<p>California High-Speed Train Program ARRA Grant, Grant/Cooperative Agreement No. FR-HSR-0009-10-01-06 (Amendment 6)</p> <p>http://www.hsr.ca.gov/docs/about/funding_finance/funding_agreements/HSRFRA_CooperativeGrantAgreement_Amendment6_051816_Redacted.pdf</p>

Source and Reference Documents

California High-Speed Rail Authority, Funding Contribution Plan, for June 2016 quarter

http://www.hsr.ca.gov/docs/about/funding_finance/funding_agreements/Q2_16_FCP_v4_3.pdf

California High-Speed Rail Authority, 2016 Business Plan Ridership and Revenue Technical Memorandum

http://hsr.ca.gov/docs/about/business_plans/2016_Business_Plan_Ridership_Revenue_Forecast.pdf

CP 1 Information

http://www.hsr.ca.gov/Programs/Construction/about_construction_package_1.html

CP 2-3 Information

http://www.hsr.ca.gov/Programs/Construction/about_construction_package_2_3.html

CP 4 Information

http://www.hsr.ca.gov/Programs/Construction/about_construction_package_4.html

Executive Order B-30-15, issued by Governor Brown on April 29, 2015

<https://www.gov.ca.gov/news.php?id=18938>

Final Environmental Impact Reports/Environmental Impact Statements (FEIR/EIS) for the Merced-Fresno section.

http://www.hsr.ca.gov/Programs/Environmental_Planning/final_merced_fresno.html

Final Environmental Impact Reports/Environmental Impact Statements (FEIR/EIS) for the Fresno-Bakersfield sections.

http://www.hsr.ca.gov/Programs/Environmental_Planning/final_fresno_bakersfield.html

Initial Central Valley Section: Madera County to Bakersfield (Kern County) of the California High-Speed Train Program FY 10 Grant, Grant/Cooperative Agreement No. FR-HSR-0118-12-01-00, November 18, 2011

http://www.hsr.ca.gov/docs/about/funding_finance/funding_agreements/FR-HSR-0118-12-01-00.pdf

Legislative Counsel Bureau, Opinion regarding high-speed rail project, June 8, 2012

Source and Reference Documents

Proposition 1A, the “Safe, Reliable High-Speed Passenger Train Bond Act for the 21st Century” (the Bond Act)

ftp://www.leginfo.ca.gov/pub/07-08/bill/asm/ab_3001-3050/ab_3034_bill_20080826_chaptered.html

Safeguarding California, California Air Resources Board, updated implementation action plans by sector

[http://resources.ca.gov/docs/climate/Safeguarding%20California_Implementation%20Action%20Plans%202015%20\(CNRA\).pdf](http://resources.ca.gov/docs/climate/Safeguarding%20California_Implementation%20Action%20Plans%202015%20(CNRA).pdf)

Senate Bill 862 (SB 862), Chapter 36, Approved by Governor on June 20, 2014.

http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201320140SB862

Senate Bill 1029 (SB 1029), Chapter 152, Approved by Governor on July 18, 2012.

http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201120120SB1029